and the vertical angle to increase, the volume being constant. Show that the angular velocity is proportional to the altitude.

442. *By Prof. Casey.*—$ABN$ is a given circle, $D$, $F$ and $O$ are given points in the same plane. It is required to describe a circle passing through $D$ and $F$ and intersecting the given circle in the points $G$, $H$, so that the triangle $GOH$ may be of a given magnitude.

443. *By O. H. Merrill.*—In cutting the maximum rectangular parallelopipedon from a frustum of a cone, five pieces are cut off. Find the volume of each of these pieces.

444. *Selected by Prof. H. T. Eddy.*—Given the five equations,

$$\begin{aligned} x_1^2+x_2^2+x_3^2 &= 3\beta^2, \\ y_1^2+y_2^2+y_3^2 &= 3\alpha^2, \\ x_1y_1+x_2y_2+x_3y_3 &= 0, \\ x_1+x_2+x_3 &= 0, \\ y_1+y_2+y_3 &= 0. \end{aligned}$$

Eliminate $x_2y_2$ $x_3y_3$, and show that

$$\alpha^2x_1^2+\beta^2y_1^2 = 2\alpha^2\beta^2.$$

(Routh's Dynamics, 4th Edition, Article 38.)

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## *PUBLICATIONS RECEIVED.*

*Annual Report of the Chief Signal Officer to the Secretary of War for the fiscal year ending June* 30, 1881. 8vo. 981 pages, with 69 maps. Washington: 1881.

*Transactions of the Wisconsin Academy of Science, Arts, and Letters.* Vol. V. 1877–1881. Madison, Wisconsin. 1882.

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## *ERRATA.*

On page 169, line 21 (Vol. VI), in the exponent of $e$, for $w$ read $\omega$.
" " 138, line 13 from bottom (Vol. IX), for $b^3$, read $b_3$.
" " 85, lines 10, 11, 12, 14 and 15, read for exponents of $x$ in the last eq'n of the several lines, respectively, 2, 3, $n$, 2, $n$.
" " 95, " 6, 8, and 10, divide each fraction before $\int$ by 2.
" " ", line 7, insert $y$ before $dy$.
" " ", " 10, for $512r^2 \div 525\pi$, read $256r^2 \div 525\pi$.
" " 102, " 3, for $y_3$, read $y^3$.
" " 115, " 23, for $(2-2m)$, read $(2+2m)$.
" " 116, " 4, for $= \infty$, read $= -\infty$.
" " 118, " 15 from bottom, for $\frac{8}{27}\frac{8}{7}a$, read $\frac{8}{27}\frac{8}{7}a^3$.
" " 119, at head of Table III, for $-px$, read $+px$.